Public health workforce of the future

A 20-year perspective

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Table of contents

Executive summary.................................................................................................................................................. 3

1. Context .......................................................................................................................................................... 6
   1.1 Purpose of the review ...................................................................................................................... 6
   1.2 Challenges surrounding the public health workforce ................................................................. 7
   1.3 Review methodology...................................................................................................................... 8
   1.4 How to use the report ...................................................................................................................... 9

2. What factors are driving change? ............................................................................................................... 10
   2.1. Demography ................................................................................................................................... 10
   2.2. Public sector finances and future funding...................................................................................... 13
   2.3. Devolution ...................................................................................................................................... 14
   2.4. Prevention ...................................................................................................................................... 16
   2.5. Technology ..................................................................................................................................... 19
   2.6. Environmental and global health issues........................................................................................... 21

3. Future skills and functions .......................................................................................................................... 24
   3.1. Overarching themes ....................................................................................................................... 24
   3.2. System leadership .......................................................................................................................... 26
   3.3. Health protection ........................................................................................................................... 27
   3.4. Healthcare public health ................................................................................................................ 28
   3.5. Health and wellbeing...................................................................................................................... 29

4. Future careers ............................................................................................................................................. 31
   4.1. Scientist .......................................................................................................................................... 32
   4.2. Health protection officer ................................................................................................................ 32
   4.3. Analyst ............................................................................................................................................ 33
   4.4. Systems leader ............................................................................................................................... 34
   4.5. Public health champion .................................................................................................................. 34
   4.6. Specialist in population health ....................................................................................................... 35
   4.7. Community health worker ............................................................................................................. 36

5. Conclusions ................................................................................................................................................. 37

Acknowledgements ............................................................................................................................................... 40
References ............................................................................................................................................................. 41
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Executive summary

Introduction

The Centre for Workforce Intelligence (CfWI) has been commissioned by the Department of Health (DH), Public Health England (PHE) and Health Education England (HEE) to prepare a discussion paper on the public health workforce in England in 2035 – 20 years on from when the work was commissioned and to align with the CfWI’s broader analysis of future health and social care workforce, Horizon 2035 (CfWI, 2015a). This paper is timely, because it comes at the end of two years’ work by the CfWI to document, quantify and better understand the public health workforce, and it will feed into the DH’s refresh of its public health workforce strategy during 2016. This report complements PHE’s five year view of the public health workforce, Fit for the Future – Public Health People: A review of the public health workforce (PHE, 2016a), and shares many of its sources.

Considering 20 years ahead is fraught with difficulties, with the need to understand a variety of plausible scenarios – this is because some events may develop far more slowly than predicted, whilst others will appear quite unexpectedly and have unforeseen consequences. For example, in the 1980s the consultancy firm McKinsey famously concluded that the world market for mobile phones would be 900,000 by the year 2000: yet by 1999, this was in fact the number joining the world's mobile-phone services every three days (The Economist, 7 October 1999).

Therefore, the discussion and analysis of factors driving change in this report are important to consider for the range of future situations that the public health workforce may face. This report is based on the best information available, arising from extensive research and stakeholder engagement across the public health system in late 2015 and early 2016. It is intended to stimulate discussion amongst public health stakeholders. It presents a view from the CfWI’s perspective; others will have different but equally valid opinions, and are encouraged to join the debate. Overall, there will be a range of planning and delivery responsibilities in the future, and so a shared vision of what is driving change and potential futures will help further development of this workforce.

The long-term drivers affecting the public health workforce

PHE’s report has identified the factors having the most immediate impact on the public health workforce to be:

- **Demography** – the growing population, its changing composition (e.g. by age and ethnicity), and its consequences for the make-up of the public health workforce itself;
- **Public sector finances and future funding** – the level at which public health activities and staffing can be supported, and how they will be funded;
- **Public sector reform** – changes to the structure and objectives of public health governance and delivery;
- **Need to achieve a radical upgrade in prevention** – delivery of public health interventions to reduce demand for acute services and the costs of managing long term conditions, as set out in the Five Year Forward View (CQC et al, 2014);
- **Technology** – advances in science and the management of public health, leading to new treatments, new skills within the workforce and new approaches to the use of technology;
- **Environmental and global health issues** – managing the consequences of climate change and other health related global issues, including delivery of the UK commitment to the universal Sustainable Development
Goals (United Nations, 2015), as well as the resulting changing burden of disease and new and emerging global health threats.

In this report, the CfWI has described each factor in turn and explored a 20-year view, considering both what might happen, and two extreme alternative options for each scenario (recognising considerable differences of opinion and degrees of uncertainty as to outcomes).

The long-term implications on public health skills

The CfWI considers that, by 2035, the main implications of these factors on the workforce will be:

- A continued requirement for a core group of people with the skills to address specific public health issues;
- Less direct reference to the term ‘public health’;
- A blurring between the ‘core’ and ‘wider’ workforces;
- Greater involvement of the voluntary and private sectors;
- Greater workforce flexibility and mobility;
- An overall vision of greater personal responsibility for people’s individual health.

To meet these challenges, the CfWI suggests that the public health workforce in 2035 will likely need four families of skills and functions:

- **System leadership** – putting the public’s health at the forefront of all government activities and policies, to bring partners and other agencies together to deliver effective change and manage health inequalities (and which cuts across the other three functions listed below);
- **Health protection** – addressing the issues to health arising from disease and environmental challenges;
- **Healthcare public health** – maximising the population benefits of healthcare through prioritising resource, and through better design, access, utilisation and evaluation of healthcare interventions and care pathways;
- **Health and wellbeing** – achieving the cultural and lifestyle changes required to enable people to have greater control of their own health.

The public health workforce in 2035?

The CfWI considers that public health careers 20 years from now may be less structured and more varied compared to those of the current workforce. This will be for a variety of reasons, including:

- **Easier access to public health careers**, with faster and more flexible training routes, more modular courses and greater flexibility in changing careers;
- **More job mobility**, with staff moving employers and sectors to gain experience;
- **More flexibility in working**, with greater part-time working, greater use of technology and greater self-employment or working on a contract basis;
- **More entrants to and exits from public health**, with greater exchange of ideas between ‘core’ and ‘wider’ public health workforces.

The CfWI believes regulation of the profession may also change in future in response to these changes, with possible examples including:

- **A single regulator** for all staff delivering public health functions;
- **Regulation and revalidation based on competence** for current role rather than on a wide range of skills;
• ‘Right-touch regulation’ (as proposed by the Professional Standards Authority (PSA), PSA, 2015) so regulation will exist only where necessary to protect the public, the employer or the employee.

Conclusions

The CfWI’s conclusions are that, over the long term, there are four cross-cutting themes that commissioners will need to continue to consider:

- Managing demand more proactively across health and social care;
- Improving the effectiveness of the public health workforce;
- Improving career pathways and mobility across system;
- Ensuring the public health system can continue to respond effectively to unexpected threats to health.

Key priorities relating to the public health workforce will include:

- Successful alignment of public health priorities across the system;
- Ensuring effective and consistent communication of public health messaging;
- Ensuring unity of purpose and effective systems leadership across all professions in delivering public health outcomes, without imposing unnecessary professional boundaries or silos;
- Developing a sufficiently strong evidence base to inform decision-making in public health, including on the workforce and the ‘return on investment’ of public health interventions;
- Ensuring capability in key areas of strategic importance, such as communicable diseases and healthcare public health.

We have limited understanding of what the future holds in 2035, with a variety of futures possible for the public health workforce. Therefore, the primary task for the system over the long term will be to monitor any changes in the system, understand their implications for the public health workforce, and if appropriate, make the necessary adjustments. The aim of this report has been to provide information which may help in identifying and making the necessary adjustments easier.

The CfWI hopes that this report will be a useful contribution to the debate about the workforce’s role in improving the public’s health.
1. Context

This section outlines the context for this report, in discussing the following points:

- Purpose of the review;
- The key questions to answer regarding the future of the public health workforce;
- The main current challenges surrounding the public health workforce;
- The review methodology;
- How to use this report.

The purpose of this section is to set out the current context for the public health workforce, as a starting point for development of the profession over the next 20 years.

NB. This report is based on the engagement and research activity described below. It is intended to stimulate discussion amongst public health stakeholders. It presents a view from the CfWI’s perspective; others will have different but equally valid opinions and are invited to join the debate.

1.1 Purpose of the review

The CfWI was commissioned by the Department of Health (DH), Public Health England (PHE) and Health Education England (HEE) to prepare a discussion paper on the public health workforce of 2035 – 20 years on from when the work was commissioned, and to align with the CfWI’s broader analysis of future health and social care workforce, Horizon 2035 (CfWI, 2015a).

This project is timely, as it comes at the end of more than two years work by the CfWI to document, quantify and better understand the public health workforce\(^1\) (CfWI, 2014a; CfWI, 2014b; CfWI, 2015b; CfWI, 2015c; CfWI, 2015d; CfWI, 2015e; CfWI 2016a; CfWI, 2016b; CfWI & RSPH, 2015), and it will help support the DH’s expected refresh of its Public Health Workforce Strategy (DH, LGA & PHE, 2013) during 2016. This report complements PHE’s five-year view of the public health workforce, Fit for the Future – Public Health People: A review of the public health workforce (PHE, 2016a), and shares many of its sources.

The objective is to use both the project activity and the final reports to stimulate stakeholder debate around the skills, capability and capacity needed in the public health workforce, including informing the national PH workforce strategy, and the possible policy responses open to bodies such as the DH, PHE and HEE to address the issues identified.

Recent development of public health in England has been shaped by the Health and Social Care Act 2012 (Health and Social Care Act 2012), which led to the transfer of the majority of responsibilities for public health from the NHS to local authorities and a new national body in PHE. As the new system continues to develop, this report asks what needs to be done to continue improving and protecting the public’s health in future. In particular, what types of worker will be needed to deliver these

\(^1\) A summary overview of the CfWI’s public health work published between 2014 and 2016 (CfWI, 2016c) can be found at the following link: http://www.cfwi.org.uk/publications/cfwi-public-health-report-a-summary
functions, and what skills and competencies will they need to demonstrate? In 2035, will the public health workforce be different to that of now, and if so... how?

This report considers the following:

- **What are the key trends and drivers that over the next 20 years will shape the context within which we need to protect and improve the public’s health?**
- **What might this mean for future skills and capabilities over the next 20 years, and likely trends in the workforce?**
- **What might example careers look like in 20 years’ time?**
- **What are therefore the main strategic priorities for public health workforce planning over the next 20 years, which can take in a range of possible futures?**

### 1.2 Challenges surrounding the public health workforce

Considering 20 years ahead is fraught with difficulties, with the need to understand a variety of plausible futures—this is because some events may develop far more slowly than predicted, whilst others will appear quite unexpectedly and have unforeseen consequences. For example, in the 1980s the American telecommunications company AT&T asked the global consulting firm McKinsey and Company to estimate how many mobile phones would be used globally by the turn of the century. The consultancy noted all the problems with the new devices — large and heavy handsets, weak batteries, patchy coverage, high costs — and concluded that the total world market would be about 900,000. Yet by 1999, 900,000 new subscribers were in fact joining the world's mobile-phone services every three days; McKinsey having not anticipated that by 1999 all the above issues would be largely resolved (The Economist, 7 October 1999). Therefore, any futures should always be treated with appropriate caution.

History suggests that decisions tend to be limited by those made in the past (Skocpol, 1979; David, 1985; Pierson, 2000; Pierson, 2004), with institutional change happening only at limited ‘windows of opportunity’, where policymakers focus on a given issue and develop policies to address that issue, and favourable politics allows such policies to be enacted (Kingdon, 1984; Baumgartner & Jones, 1993). The implication is that it makes no sense to take a 20 year perspective without awareness of the current context.

#### Future developments

Given the current context, there are three high-level premises which the CfWI believes one can confidently make around future development of the workforce over the next five years and beyond:

- **Demand for health and social care services is likely to increase.** The CfWI, through its Horizon 2035 project, identified a range of futures for which demand for skills for health and social care services may change between 2013 and 2035, from demand increasing by just over a fifth to demand increasing by nearly fifty per cent (CfWI, 2015a).
  This means a key challenge for the future will therefore be making improving and protecting the public’s health ‘everybody’s business’, in order to ensure demand for health and social care services can be managed. It will also mean ensuring resources are used to maximum effect, and therefore that public health continues to play an active role in commissioning of health services to maximise economy, efficiency, effectiveness and equity.
- **Public health will need to make the case for investment in prevention.** The 2015 Comprehensive Spending Review (CSR) committed the Government to reducing public health expenditure within local authorities by
an average of 3.9 per cent per year up to 2020, and non-NHS Department of Health expenditure (which would include funding for PHE) by approximately 25 per cent in real terms over the same period (HM Treasury, 2015).

It is therefore evident that public health as a discipline will, for the foreseeable future at least, operate under considerable financial constraints, and the public health workforce of the future will need to demonstrate that it delivers value for money. As noted above, it will mean ensuring resources are used as effectively as possible, emphasising public health’s role in commissioning of services.

- **There is still considerable uncertainty around understanding the future development of the public health workforce.** There will be considerable uncertainty around how current trends will emerge— for example, around increased devolution (AGMA et al, 2015), the development of new technologies and approaches, and the possibility of extreme weather events and emerging contagious diseases (e.g. pandemic flu, Ebola, Zika virus).

  The public health workforce in future should therefore have sufficient skills and capabilities to be agile, flexible and able to respond to future events even though their trajectory is unknown.

There is also considerable uncertainty around data availability on the workforce (CfWI, 2014b; CfWI, 2015b; CfWI, 2015c; CfWI, 2015d; CfWI, 2015e; CfWI, 2016a). Therefore, a further objective will be to improve public health workforce data, in order to better inform decisions around recruitment, managing risk, and delivering system capacity.

### The ‘Fifth Wave’ of public health? ²

It is becoming recognised across the public health system that new population-based approaches are now needed, giving rise to the concept of a ‘fifth wave’ of public health (Hanlon et al, 2011; Davies et al, 2014). Looking historically, the first wave of public health was associated with great structural work such as the provision of clean water to urban areas. The second wave saw the emergence of medicine as science. The third wave was characterised by the redesign of social institutions (including the establishment of the NHS and the welfare state) and the role of everyday life and lifestyles on our health was explored. The fourth wave has been dominated by recognition of the influence of social determinants. The best of what these previous four waves can achieve needs to be preserved.

However, it is argued that a different approach – a fifth wave of public health – is needed in the 21st century (Hanlon et al, 2011, Davies et al, 2014) to address modern phenomena and epidemics. This approach will differ radically from its forerunners. It is likely to be characterised by enabling government, greater interdependence and cooperation across sectors and geographies, and involvement of the public more individually and personally in improving and maintaining their own health. Davies argues that a fifth wave which is ‘cultural’ in character is inevitable – essentially a society where healthy behaviours are the norm, supported by the physical, social and economic environment.

### 1.3 Review methodology

This report builds on the following PHE-led engagement activity with the public health system in late 2015 and early 2016:

PUBLIC HEALTH WORKFORCE OF THE FUTURE
A 20-year perspective

- **Regional stakeholder workshops** – a series of nine events\(^3\), with representatives from local government, PHE, HEE, the voluntary and academic sectors, which identified the factors driving change and discussed the potential implications;
- **Survey** – an online survey managed by PHE which asked similar questions to those discussed at the workshops. 198 complete responses were received\(^4\);
- **Key informant interviews** – PHE researchers interviewed more than fifty senior stakeholders to obtain their views;
- **Additional other events** – the workshop questions were repeated with other groups including PHE’s senior leadership team, a group of London Directors of Public Health, and the People in UK Public Health advisory group.

The report also builds on **CfWI research**, including findings from a number of recent CfWI projects (e.g. CfWI, 2014b; CfWI, 2015b; CfWI, 2015c; CfWI, 2015d; CfWI, 2015e; CfWI & RSPH, 2015; CfWI, 2016a; CfWI, 2016b).

In particular, **emphasis has been given to the skills and functions required in the future, rather than job titles and organisations.** This is to reflect the fact that the current public health system has only been in effect since 2013, and that it is likely that there will be further change over the next 20 years.

### 1.4 How to use the report

The intention of this report is to explore possible future trends for the public health workforce, based on the best information available and the extensive research and stakeholder engagement noted above. It does not cover every aspect of public health in detail and readers may disagree with the content in places.

However, the CfWI hopes this report will stimulate further discussion of what options exist to improve and develop the public health workforce, and thereby provide an evidence base for an updated DH *Public Health Workforce Strategy*.

The remainder of the report covers the following:

- **A more detailed explanation of the drivers** likely to affect the public health workforce over the next 20 years;
- **Future skills and functions** required in the workforce, based on the drivers identified;
- **A discussion of possible future careers** which may emerge as a result of the long term drivers identified;
- **A summary of the main implications arising**, as well as possible areas of long-term focus for the public health workforce.

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\(^3\) As explained in the acknowledgements, PHE, with supported from the CfWI and the Leadership Centre, hosted eight regional events within the local government regions (PHE centre footprints), plus an additional event for London (which did not host a regional event).

\(^4\) PHE’s survey was accessed by a total of 1223 people, and fully completed by 198 respondents, with 327 people completing more than one question.
2. What factors are driving change?

Research and consultation identified the following as the most significant factors driving change in the public health system:

- **Demography** – the growing population, its changing composition (e.g. by age and ethnicity), and its consequences for the make-up of the public health workforce itself.
- **Public sector finances and future funding** – the level at which public health activity and staffing can be supported, and who will pay for it;
- **Devolution** – changes to the structure and objectives of public health governance and delivery through new regional arrangements;
- **Need to achieve a radical upgrade in prevention** – delivery of public health interventions to reduce demand for acute services and the costs of managing long term conditions, as set out in the *Five Year Forward View* (5YFV) (CQC et al, 2014);
- **Technology** – advances in science and the management of public health, leading to new treatments, new skills within the workforce and new approaches to the use of technology;
- **Environmental and global health issues** – the consequences of climate change at home and abroad, including managing the consequences of climate change at home and abroad, including delivery of the UK commitment to the universal Sustainable Development Goals (SDGs) (United Nations, 2015), as well as the resulting changing burden of disease and new and emerging global health threats.

These factors will be explored against a five-year time horizon in PHE’s report *Fit for the Future – Public Health People: A review of the public health workforce* (PHE, 2016a). In this report, the CfWI has described each factor in turn and explored a 20 year view, considering:

- What might happen, providing references where sources exist (e.g. predictions by reputable organisations);
- Extreme alternative options, recognising where there are differences of opinion or degrees of uncertainty as to outcomes, meaning that the most likely outcomes lies somewhere in between.

NB. To draw out potential conclusions, the CfWI has considered each in isolation. However, in practice, the factors are interdependent, acting on each other in unpredictable ways, and the conclusions to be drawn from each factor regarding the workforce may be contradictory.

2.1. Demography

There are increasingly more people living in England, it is becoming more ethnically diverse and the people are living longer. All these trends are expected to continue to 2035 (PHE, 2016b).

The ONS’ population projections forecast that the population of England will increase by 13 per cent on current levels up to 2035, with greatest growth in London and the South East, and that the population aged over 65 would increase by 49 per cent in the same timeframe (ONS, 2015). The proportion of the population born outside the UK is also expected to increase considerably; the ONS assumes net migration as high as 203,500 per year by 2023 and as low as 83,500 per year, with a principal projection of 143,500 per year (ONS, 2013).
Demand for health and social care services, under current trends, is expected to increase beyond overall population growth. The CfWI, through its Horizon 2035 project, identified that demand for skills used by health and social care services will likely increase between 2013 and 2035, with possible futures varying from an increase of just over a fifth to just under half (CfWI, 2015a). It also found that for all futures this increase was likely to be concentrated in particular areas, such as at the lowest skills levels (i.e. services requiring no training, and representing unpaid care and support delivered by unpaid carers and volunteers), and in skills relating to long-term mental health and physical health conditions (CfWI, 2015a).

This finding is consistent with other findings elsewhere, not least around obesity. PHE’s 2015 report, Sugar reduction: the evidence for action, found that in 2012 almost 25 per cent of adults, 10 per cent of 4 to 5-year-olds and 19 per cent of 10 to 11-year-olds in England were obese, with 37 per cent of adults overweight. The report also argued that obesity and its consequences alone currently cost the NHS £5.1 billion every year (PHE, 2015a). According to PHE, if the Scientific Advisory Committee on Nutrition (SACN) recommendation of sugar consisting no more 5 per cent of total dietary energy was achieved over 10 years, the NHS would save £500 million per year (PHE, 2015a). PHE’s report also follows an earlier 2007 Government Foresight Report on reducing obesity, which projected that 40 per cent of Britons may be obese by 2025 and a majority by 2050 (Government Office for Science, 2007).

Mental health is also increasingly recognised as important to public health. A 2011 paper by the World Health Organization (WHO) argued that untreated mental disorders account for 13 per cent of the total global burden of disease, with unipolar depressive disorders 4.3 per cent and that by 2030 mental health (especially depression) will be the leading cause of mortality and morbidity globally, with the potential to widen health inequalities (WHO, 2011). Evidence on a range of possible futures published by the CfWI supports this, with a projection that demand for skills for long-term mental health conditions is likely to increase by between a fifth and just under a half between 2013 and 2035 (CfWI, 2015a).

Considerable health inequality also continues to exist between and within geographic regions. Work on the Global Burden of Disease Study, explained by a 2015 Lancet article by Newton et al, shows considerable variation in life expectancy in 2013 when controlled for by region and deprivation area: as high as 8.2 years for men, and 6.9 years for women. Most significantly, the article found considerable health inequalities between the least deprived and most deprived areas remained, particularly between the South East and the East of England, and the North East and the North West (Newton et al, 2015). The implication, as explained in the article, is that ‘systematic action locally and nationally is needed to reduce risk exposures, support healthy behaviours, alleviate the severity of chronic disabling disorders, and mitigate the effects of socioeconomic deprivation’ (Newton et al, 2015). Another study by Jagger et al (2016) suggests that over the last two decades in England there has been a reduction in cognitive impairment and in the proportion of life spent healthy, as well as an increase in less severe disabilities; the authors argue that while the reasons for these patterns are unknown, one possible factor may be increases in obesity (Jagger et al, 2016). Two extreme alternative outcomes in 2035 are described below.
Consequences of demographics manageable

A combination of effectively harnessed new technologies, improved productivity and people retiring later in life means that the country can cope with the additional population and related challenges. Improved health education has changed lifestyles so that people are able to live longer with a better quality of life. The workforce delivers services according to community needs, to target public health issues and marginalised or vulnerable communities to reduce health inequalities.

Implementation of NHS England’s *Five Year Forward View for Mental Health* (NHS England, 2016) has also delivered parity of esteem and ensured that mental wellbeing is a core part of public health. There is widespread understanding of mental health across all aspects of public health with the intention to identify the early signs of mental illness, signpost to relevant services and incorporate mental health wellbeing into all aspects of health and social care.

The implications for the public health workforce may include:

- **Increased health promotion and improvement activity, particularly directed at those in late middle-age, to encourage and support them to remain economically active.** Demand management and converting behavioural insight research into action will be important skills;
- **A key role for public health specialists able to advise on how to maintain or improve health and wellbeing,** despite population pressures. These would be able to use, for example, behavioural ‘nudges’ to encourage behaviour change, alter social norms to promote healthy lifestyle choices and self-management, and foster greater involvement of other workforces in promoting health;
- **Increased opportunities,** e.g. **apprenticeships, graduate entry, flexible working** are deployed to mitigate the effects of an ageing workforce and avoid skills gaps;
- **A stronger role for the wider workforce and community volunteers** providing public health education to service users and peers, as well as support to better manage mental and physical long term conditions at home.

Consequences of demographics unmanageable

Significantly increased population, increased numbers of older people, increased diversity of physical and mental illness arising from a less homogenous population, and ineffective management of long-term conditions threaten to overwhelm the finances of the health, social care and welfare systems.

The implications for the public health workforce may include:

- **Reduced expenditure on public health activities, given that limited budgets are being spent on immediate health needs instead.** This may reduce employment in all aspects of public health, and also transfer responsibilities from core to wider workforce roles and the voluntary sector where feasible;
- **The extent and scale of activity focused on reducing health inequality varies across the country** as local action replaces national legislation (see devolution below). There will be pockets of public health excellence where prevention has been prioritised and the demand arising from demographic forces controlled alongside areas where public health is not prioritised with subsequent burden on over-stretched healthcare facilities;
- **The need to develop significantly more apprenticeships and graduate training opportunities across the system** in order to entice young people into public health careers and, with an ageing workforce, to offer flexible working patterns to retain staff who may otherwise retire in order to avoid skills shortages;
Greater reliance on use of the wider workforce and community volunteers leads to a public and professional perception that public health is a role that does not require expertise.

2.2. Public sector finances and future funding

The Government, under current spending commitments of the 2015 CSR, is reducing direct spend on public health: there were in-year cuts to local authority budgets of £200 million in 2015/16 (Department of Health, 2015), with further reductions in funding for public health announced, which will reduce local authority and PHE expenditure over the next five years (HM Treasury, 2015).

The CSR stated that public health expenditure within local authorities would be expected to fall by an average of 3.9 per cent per year up to 2020, and non-NHS Department of Health expenditure (which includes funding for PHE) by approximately 25 per cent in real time over the same period (HM Treasury, 2015). The CSR also included the intention to end the ring fencing of the public health grant to local authorities after 2017/18, and to consult on the proposal that most local government expenditure be funded from retained business rates (HM Treasury, 2015). This financial restraint is consistent elsewhere within the public sector— with public sector spending falling from 45 per cent of total output in 2010 to 36.5 per cent in 2020, and with overall day-to-day departmental spending being cut by £20 billion, approximately 0.8 per cent of total expenditure each year by 2020 (HM Treasury, 2015).

Future public health expenditure is dependent on both future economic growth and future decision-making. However, given the 2015 CSR, it is reasonable to assume that financial restraint may continue for public health services. This may have significant implications for delivery of public health services, given expected increases in healthcare expenditure. Health Education England’s Framework 15 cited the Office for Budget Responsibility (OBR) finding that healthcare spending as a proportion of national spending may significantly increase over the long term, with healthcare spending according to the OBR set to change from 6.8 per cent of GDP in 2016/17 to between 7.8 and 16.6 per cent of GDP in 2061 (HEE, 2013). These may suggest that over the long term, costs may increase significantly— and that effective workforce planning will be key to containing costs.

Two extreme alternative outcomes in 2035 are described below.

Best case

There has been steady or strong economic growth for the past 20 years, at 2-3 per cent per year or higher, which leads to a resource-rich environment and therefore appropriate funding to reduce public health inequalities.

Despite budget cuts under the 2015 CSR, local authorities find that the incentives and freedoms arising from new tax raising powers encourage economic growth and generate additional funds for public health, creating a virtuous circle of better health, increased employability and a growing local economy able to raise the public health of all. The Government may choose to adjust the funding formula to support those parts of the country with greatest need, thereby reducing health inequalities.

With healthy public finances, the Government may also be able to fund a broad range of national public health initiatives and a world-class scientific research capability.

The implications for the public health workforce may include:
A stronger public health service, operating locally and nationally – although with local variation in funding and workforce, as appropriate, to address different local priorities and budgets;

The wide use of healthcare public health skills to compare health outcomes across the country and determine which approaches are most effective;

A closer working relationship with those professions responsible for the wider determinants of public health, and especially the link between economic development and health.

**Worst case**

There has been economic stagnation or limited economic growth over the past 20 years, with GDP growth around 1 per cent per annum or lower, leading to limited economic recovery, limited funding for public health, and growing income inequality across the country.

Local authorities and national agencies face continued reductions to budgets beyond 2020 in line with those under the 2015 CSR, leading to long-term reductions in staffing. These may lead public health outcomes to worsen and health inequalities to widen, with those most reliant on the state receiving reduced levels of support. Furthermore, new funding arrangements for local government mean that those authorities least able to generate funding from business rates have less funding for public health activities. This further encourages growing inequality between different parts of the country on public health outcomes.

The Government in this scenario would therefore need to decide which public health risks to prioritise, potentially reducing expenditure on lifestyle factors and focusing on immediate risks such as emergency environmental response and containment of communicable diseases.

The implications for the public health workforce may include:

- **Reduced headcount across all parts of the system**, with less impact on health protection services and healthcare public health, and greater impact elsewhere (for example, health improvement and health intelligence);

- **Reduced non-statutory services** (currently, for local authorities, examples include smoking cessation and substance misuse), although these may be delivered by the voluntary sector instead, filling gaps in government provision where necessary, and individuals may be expected to contribute to the cost;

- **An increased focus on specialists (including healthcare) public health skills** to analyse the evidence and determine what works, so that limited funds can be more closely targeted;

- **Public health teams may be too small to be fully effective**: public health leaders will need to work differently to influence budgets across local and national government, through consolidation of teams or by focusing on strategic rather than operational activity.

### 2.3. Devolution

The Government has begun a programme of regional devolution, with cities and regions bidding for the transfer of powers from Whitehall and the sharing of resources across organisational boundaries. There is still considerable uncertainty around what developments may eventually transpire: although Greater Manchester is at time of writing set to take control of a £6 billion health and social care budget (AGMA et al, 2015). It is unknown whether such arrangements will become standard across England, and what role public health will have in it. Moves towards regional devolution have the potential to significantly affect delivery of services, with Deloitte highlighting the need to ‘seize the opportunity for more joined-up services’ in order to ensure productivity gains (Deloitte, 2015).
The CfWI has assumed the following developments by 2035:

- There will be a layer of regional government in place;
- The success of devolution will be variable – as the scope in each region will be different and the results variable;
- There will be a focus on health and social care integration within devolution arrangements as a means of reducing costs (see prevention agenda below);
- National control will be retained over activities best done in a coordinated way across the country, or where economies of scale apply, e.g. specialist emergency response, national scientific expertise.

Two extreme alternative outcomes in 2035 are described below.

**Successful devolution**

Programmes of devolution first started in 2015/16 have deepened and widened by 2035, leading in some areas to regional assemblies and across the board the substantial devolution of powers from central to regional and local levels of governance. The most effective regions have taken responsibility for a wider range of public health responsibilities including:

- Health promotion and improvement, not least to tackle the growing cost of health and social care;
- Health protection, including environmental and related roles currently provided by the Environment Agency and PHE.

The implications for the public health workforce may include:

- **Regional public health teams providing services to local authorities.** This has led to some economies of scale and some reductions in posts (for example, fewer senior managers);
- **A higher profile and greater reach for public health leaders,** able to influence public health across a larger area than at present and in a more joined-up way;
- **The development of regional centres of excellence,** with larger teams able to focus on specific public health issues, perhaps in conjunction with local academic institutions;
- **The tendering of larger contracts for the delivery of public health services,** leading to the consolidation of health service and third sector providers – offering development opportunities for some staff but less job security for others;
- **Variation in the shape of the workforce across the country,** as each regions experiment with alternative models of provision appropriate to local circumstances, potentially developing bespoke roles or qualifications, and with different pay structures;
- **National level services in clearly defined areas of strategic importance,** for example in specific areas relating to health protection and communicable diseases, such as knowledge and intelligence services or surveillance;
- **The development of an integrated professional body at national level for public health professionals** offering a range of qualifications across public health at all levels of seniority, allowing staff to demonstrate portable skills and to move easily between employers.

**Unsuccessful devolution**

Programmes of devolution, first started in 2015/16, have developed at different speeds, with the result that while there have been successful outcomes in some regions, other regions have not fared so well. There is therefore a patchwork of governance arrangements, each with different public health responsibilities, focused
on different public health outcomes. A strong national public health agency remains, with regional presence; however there is a lack of clarity around its role, with local authorities and regions seeking to defend their autonomy with varying degrees of success, and with pressure for expansion of its role to level out inequalities in provision and delivery.

The implications for the public health workforce may include:

- **A premium on influencing and negotiating skills for local public health leaders** if they wish to have greater profile and reach outside their own authority (except where devolution deals have been successful);
- **Variable pay grades and structures and training programmes for some staff** with a mix of provision e.g. small local teams where devolution has had a limited impact and larger regional teams where devolution has been successful (with the former finding it difficult to recruit staff at all levels due to differentials in pay);
- **A relatively fragmented provider marketplace** with local providers lacking national coverage, thereby limiting career development opportunities, with smaller organisations less able to invest in staff training.

### 2.4. Prevention

The current Government is committed to the 2014 *Five Year Forward View* (CQC et al, 2014). This commits the NHS to ‘a radical upgrade in prevention and public health’, and that in future the NHS would back ‘hard hitting national action on obesity, smoking, alcohol and other major public health risks’, as well as ‘stronger public health related powers for local government and elected mayors’ (CQC et al, 2014). This suggests that the future role and importance of public health is likely to increase, given the clear signal that promoting the prevention agenda will be a national priority for a number of health and social care organisations. HEE’s *Framework 15* takes a similar view, arguing that ‘there is a greater emphasis on more care and work on prevention being provided in the community and closer to home’ and citing future developments towards shift of care, personalised care in giving birth, and diabetes prevention programmes (HEE, 2013).

There is compelling evidence to suggest that a stronger focus on prevention will be vital for future sustainability of health and care services. For example:

- The Wanless Reports in 2002 and 2004 argued that better focus and investment on health promotion and disease prevention were key factors in helping drive lower overall demand for healthcare services (Wanless, 2002), and that focusing on reducing health inequalities and shaping the wider determinants of public health would be cost-effective in achieving this end (Wanless, 2004);
- The Government Office for Science in 2007 found that potentially more than half the adult population may be obese by 2050, resulting in costs attributable to obesity doubling to £10 billion per year by 2050, and wider costs to society as high as £49.9 billion per year (Government Office for Science, 2007);
- More recently Cancer Research UK with the UK Health Forum has predicted that being overweight or obese could cause around 700,000 new UK cancers by 2035 and cost the NHS an additional £2.5 billion a year by 2035 over and above what is already spent on obesity related disease (Cancer Research UK & UK Health Forum, 2016);
- In its 2015 report *Horizon 2035*, the CfWI through suggesting a range of futures considered that demand for health and care skills may need to increase by at least a fifth and potentially by as much as nearly half between 2013 and 2035 — much higher than expected population growth in that timeframe (CfWI, 2015a);
A joint World Health Organization (WHO) and Faculty of Public Health (FPH) report argues that prevention can be ‘cost-effective, provide value for money and give returns on investment in both the short and longer terms’ (WHO & FPH, 2014);

The King’s Fund argues that commissioners ‘must shift the current emphasis on acute and episodic care towards prevention, self-care and integrated and well co-ordinated care to cope with an aging population and increased prevalence of chronic diseases’ (King’s Fund, 2015).

In policy terms, the move towards prevention has been shown through the Making Every Contact Count programme, which aims to encourage more proactive approaches to wellbeing within daily interactions (NHS Yorkshire and the Humber, 2012; PHE & HEE, 2016). If fully implemented across the system, a net effect may be to genuinely make protecting and promoting the public’s health ‘everybody’s business’, with organisations actively making every interaction count to reinforce behaviour change. Similarly, given the increased emphasis on prevention in policy terms, one implication may be ensuring better capacity in healthcare public health to maximise the effective use of clinical services where prevention is less successful – to get the most cost effective use of resources.

Two extreme alternative outcomes in 2035 are described below.

**Effective prevention**

The Five Year Forward View has taken hold and prevention has become fully enshrined as a principle of the health and social care system. Successive governments have made prevention a priority in order to address the public finance challenges posed by an ageing population and expected increases in associated long term conditions. Increased demand for health and care services therefore is not as high as projected by the CfWI up to 2035 and is managed in a sustainable manner, and so individual public health outcomes improve.

The following preventative activity is complete or in place by 2035:

- Legislation has shaped the food industry, generally reducing the levels of sugar, salt, fat, alcohol in the nation’s diet (for example, by addressing the issues raised in PHE’s 2015 report *Sugar Reduction, The evidence for action*) (PHE, 2015a);
- There is better public education about public health issues (including mental health, substance misuse and sexual health as well as diet) at schools, colleges, workplaces and in the community;
- There is investment in programmes to help people to improve their own health, including exercise and fitness opportunities;
- Corporate responsibility obligations ensure that employers must comply with public health legislation and support their employees’ wellbeing;
- Self-care technology (see technology below) becomes cheaper and easier to use, allowing people to better manage their own health;
- Cities and regions are operating on Marmot principles⁶, focused on health improvement in all policies.

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⁵ *Making Every Contact Count* (MECC) is an approach to behaviour change that utilises the millions of day-to-day interactions that organisations and individuals have with other people to support them in making positive changes to their physical and mental health and wellbeing. MECC enables the opportunistic delivery of consistent and concise healthy lifestyle information and enables individuals to engage in conversations about their health at scale across organisations and populations. Most of the current work relating to MECC has been led by PHE and HEE, who have worked closely together in areas such as improving the public health capability of all staff and providing tools to support with this (e.g. PHE & HEE, 2016), as well as hosting a national conference in partnership with PHE in February 2016 to share best practice around MECC.

⁶ A 2010 report led by Sir Michael Marmot from UCL’s Institute for Health Equity, *Fair Society, Healthy Lives* (Institute for Health Equity, 2010) recommended that reducing health inequalities would require action on six policy objectives: *giving every child the best start in life; enabling all children, young people and adults to maximise their capabilities and have control over their lives; creating fair employment and good work for all;*
The implications for the public health workforce may include:

- **A premium on good health economics skills to demonstrate the financial case for investment in prevention.** Healthcare public health skills are therefore highly valued at a strategic level, to conduct analysis of results and to gather grass roots evidence;

- **Full engagement of the wider public health workforce in prevention,** meaning that the distinction between the core and wider workforce is blurred in many places;

- **Many more jobs than currently for staff delivering important public health messages at community level as health education and literacy skills are better valued** (jobs are likely to include a mix of paid and volunteer posts);

- **Sports and exercise staff become a core part of the public health workforce;**

- **A significant number of public health staff employed in the corporate sector,** both in compliance roles (ensuring companies meet stringent public health legislation) and occupational health roles (supporting employees to stay healthy);

- **A significant number of public health staff working for technology companies,** developing self-care and related products to sell to the public.

*Ineffective prevention*

The prevention agenda has not taken hold at an individual level, with efforts still largely ‘state led’ and limited in their success by active lobbying from the food industry and other commercial interests. This leads to minimal use of legislative instruments and specialist advice at national level, as well as less action at local and regional levels, and to people not yet taking appropriate responsibility for maintaining their own health.

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*ensure a healthy standard of living for all; creating and developing healthy and sustainable places and communities, and strengthening the role and impact of ill-health prevention.* The implication for cities and regions is that improving health inequalities has to be embedded within all local government policies. An example of a city actively looking to operate in this way and be a ‘Marmot City’ is Coventry in the West Midlands (Coventry City Council, 2016; LGA, 2016).
Successive governments fail to build on the promise of the *Five Year Forward View*, with insufficient priority given to the prevention agenda. Funding is diverted towards immediate health needs, demand for health and care services increases at the highest rate projected by the CfWI up to 2035 (i.e. just below 50 per cent), and public health outcomes worsen.

The implications for the public health workforce may include:

- **Fewer jobs in all sectors and at all levels** for health economics, health promotion and health improvement staff, compounded by reduced roles for the wider workforce and less corporate social responsibility;
- **Variation in extent and scale of prevention activity across the country**, with limited local pockets of public health excellence where prevention has been prioritised;
- **Variation in health inequalities**, depending on extent to which individual responsibility is promoted within individual areas, meaning that the workload of public health staff may vary considerably;
- **Less effective harnessing of new technologies and approaches, e.g. big data, social media**, with public health teams not using leading-edge methods for citizen engagement.

### 2.5. Technology

Technology will undoubtedly develop at pace over the next 20 years, with unpredictable opportunities and consequences. We can expect disruptive technologies\(^7\) to change the way we deliver public health and promote self-care. The scope of the impact is potentially limitless; future public health leaders must prepare for new technologies in terms of how they may shape the health and wellbeing of the public, as well as considering opportunity costs and return on investment.

Possible innovations cited by stakeholders and the literature include the following areas of:

- **Science** – major advances in our understanding of disease and the human body, building on current advances in areas such as genomics;
- **Data** – even faster analysis of larger amounts of data (‘big data’) and wider access to new data in real time via the internet and future communications technology;
- **Personal technology** – greater use of wearable IT and telehealth and telemedicine services allowing people to monitor their health more closely and respond accordingly, or be given personalised advice from public health professionals, or even artificial intelligence sources;
- **Communications and social media** – eHealth applications and social media services – providing new platforms for communication, reaching larger audiences and thus increasing health literacy among the public.

The McKinsey Global Institute 2013 report, *Disruptive technologies*, identifies 12 ‘disruptive technologies’ and expands on how these innovations impact the global population, service delivery and the economy (McKinsey and Company, 2013). An example of a significant disruptive technology was the invention of the internet. The internet changed industries including health systems and in most cases, these changes were beneficial. Increased use of the internet (alongside mobile health, sometimes called mHealth) in the health context, through using sensors and remote monitoring, could potentially encourage greater self-help and better track and monitor health. In public health, the use of similar disruptive innovations could have substantial economic impact. McKinsey estimates that the use of new technologies such as remote monitoring could reduce health costs.

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\(^7\) *Disruptive technologies* are innovations that displaces an established technology and shakes up the way we work or live, or a ground-breaking product that creates a completely new industry (McKinsey and Company, 2013).
system costs by 10 to 20 per cent globally by 2025 dependent on adoption rates and patient and workforce acceptance (McKinsey and Company, 2013). Therefore the use of disruptive technologies can play a role in supporting delivery of public health services, while simultaneously contributing to the reduction of public health spending.

At a more general level, the RAND Corporation completed a report for PHE in 2013 looking at future scientific and technological developments which reviewed the challenges and opportunities facing public health scientists in England (RAND Corporation, 2013). Key drivers for PHE included informatics and greater use of genomics to better predict disease prevalence, as well as better use of collaborative techniques to encourage health improvement and the need for sufficient emergency preparedness within the system. Similarly, the King’s Fund produced a report in 2015 (The King’s Fund, 2015), identifying eight technologies most likely to change health care: smartphones, portable diagnostics, smart drug delivery, digital therapeutics, genome sequencing, machine learning, blockchains for storing and accessing records and better connected communities.

It is therefore reasonable to assume that these new technologies, if effectively and appropriately harnessed, have the potential to significantly increase the productivity and effectiveness of public health staff. This is important, with the Five Year Forward View anticipating that productivity gains of at least 2-3 per cent per year will be needed by 2020/21 in order to close a potential £30 billion mismatch between patient needs and expected resources (compared to historic NHS productivity, which was on average 0.8 per cent per year between 1997 and 2012) (CQC et al, 2014).

Two extreme alternative outcomes in 2035 are described below.

**Effective harnessing of technology**

New technologies have been harnessed for improving the public’s health, with appropriate controls over data quality and ownership, customer-focused innovation driven by the private sector, and with a ‘robot in every home’ supporting public health.

By 2035, England has a world-class scientific hub, developing solutions for emerging public health issues and deploying the latest technological advances. There has also been appropriate private and public sector investment for this to happen (see public sector funding above).

New technologies are deployed effectively in the home and workplace, encouraging healthier living and better wellbeing with fewer recourses to government intervention. These include personal technologies to manage diet and exercise regimes, as well as communications technology to reduce social isolation. New surveillance and data collection of large datasets enables better anticipation of public health threats, allowing public health staff to deliver in timely and customised interventions. New technologies and apps entering the health market also go through an agile but robust process, to ensure that they improve health outcomes without compromising on patient safety.

The implications for the public health workforce may include:

- **A premium is placed upon good public health scientists and data analysts**, many of whom will work in the private sector, to apply the best science and technology available and health economists able to advise which technologies offer the best value for money or return on investment;

- **A wide range of lifestyle advisers become part of the public health workforce**, skilled in the development and deployment of the latest technology, e.g. to deliver digital health education;
A role for public health leaders to have the skills to advise how the latest technology can be deployed in the environment and community to address the wider determinants of public health;

The whole public health workforce will have access to the latest information and advice, for populations and individuals, making all accredited workers part of what we now call the wider workforce, blurring the distinction with public health professionals.

Ineffective harnessing of technology

New technologies are not effectively harnessed for improving the public’s health, with considerable inequalities in how they are used, no effective means of quality control over their use in protecting and improving the public’s health, and with innovations largely driven by the private sector and sold to wealthier consumers rather than the general public. There are also issues with quality, misinformation and patient safety, with not all health apps clinically accredited, and therefore there are cases where misleading information within apps have led to adverse outcomes.

Government underinvestment in the years to 2035 has limited the impact of public health scientists in tackling emerging health issues such as anti-microbial resistance (AMR) and communicable diseases (see environmental and global health below). Many scientists have left the public sector for better paid roles in the private sector, which is increasingly dominating the delivery of public health technology and solutions.

Governance and data access issues still largely restrict data sharing between agencies. As private sector control of data and technology grows, so does the digital divide between those able to access the latest technology and those who cannot, leading to growing health inequalities. Parts of unregulated private sector sell labour-saving devices and other technologies which reduce the need for exercise or encourage poor behaviours, increasing obesity and related issues. Uncontrolled ‘viral’ marketing of unhealthy food and drink has contributed to an increase in unhealthy behaviours, especially in children and young people.

The implications for the public health workforce may include:

- Limited opportunities for public health scientists within the public sector – but new opportunities in the commercial sector;
- Inefficient delivery of public health services, with sub-optimal use of technology, limited data sharing between agencies and potential issues around data transparency and patient confidentiality. Loss of staff morale and confidence impacts public sector systems more than the private sector.

2.6. Environmental and global health issues

Environmental and global health issues are worth consideration from a public health workforce perspective, as the need for public health expertise will increase if adverse effects of climate change happen as predicted by many forecasters. Possible implications include:

- Environmental degradation and damage to ecosystems;
- Increased flooding, heatwaves and other unpredictable weather events;
- Greater incidence of new diseases, arising from warmer weather and greater international mobility;
- Increased obligations to address global health issues, such as epidemics of communicable disease;
- Migration and population pressures (see demography above).
There are signs that climate change is expected in the UK over the long term, with a 2013 Met Office report expecting UK temperatures to rise by 3 degrees Celsius in the south by the year 2100, and 2.5 degrees further north (Met Office, 2013). Possible future implications include increased precipitation in the UK by as much as 10 per cent, as well as increased coastal flooding (Met Office, 2013). The Intergovernmental Panel on Climate Change (IPCC) has argued that global mean surface temperature is likely to increase by 0.3 to 0.7 degrees Celsius, meaning that heat waves are likely to occur more often and last longer, there will be more extreme rainfall and sea levels will rise (IPCC, 2014).

The Government is also committed to the United Nations SDGs, which aim to overcome key global health issues including combating climate change, securing access to sustainable energy resources and protecting ecosystems by 2030 (United Nations, 2015).

Globalisation has resulted in greater movement of people, products and services across international borders. Therefore as a result, the movement of communicable diseases threatens health systems globally. Surveillance of on-going cases and index cases may be more challenging for epidemiology investigation teams and may consequently result in epidemics if not controlled appropriately. Future public health threats are ever present and difficult to predict. Goal three of the SDG’s aims, by 2030, is to end current epidemics, support research and development of vaccines for communicable and non-communicable disease to protect public health and to strengthen the capacity of all countries for early warning and risk management of global health risks (United Nations, 2015).

Other environmental risks raised by stakeholders during the consultation included bioterrorism and nuclear accidents. The RAND Corporation in its review for PHE cited the need for emergency preparedness, to respond both to these and other extreme events (RAND, 2013). Thus, public health capability may need to be strengthened further in these areas, both to ensure ‘surge capacity’ in cases such as extreme weather events and to ensure constant capability to respond to emerging threats to health.

Two extreme alternative outcomes in 2035 are described below.

**Impact manageable**

The impact of environment and global health issues is controlled, with effective management of extreme events, mitigation of new communicable diseases, and developments turned into positive opportunities (for example, more sustainable living).

Concerted action by governments and individuals to change lifestyle and consumption patterns, and the deployment of new technologies, has largely avoided or mitigated the effects of expected climate change. By 2035, public opinion supports the targeting of gross domestic happiness over gross domestic product, measuring wellbeing as well as wealth.

The implications for the public health workforce may include:

- **A premium is placed upon environmental health specialists** able to advise on environmental risks and manage incidents as they arise;
- **Scientists develop deep sub-specialisms in research and development** as they address specific risks or threats;
- **The creation of medically-led public health teams able to travel to international hotspots and address global health issues at source**;
- **Opportunities to work within developing public-private partnerships**, working collaboratively across sectors and organisations;
- **Opportunities to contribute to global health governance** across countries and organisations;
- **Public health staff accepted as key members of policy and delivery teams at national and local level**, able to influence the wider determinants of health (e.g. transport policy, development policy) and sustain health and wellbeing.

*Impact unmanageable*

Action by governments and individuals up to 2035 to change lifestyle and consumption patterns has been too little and too late, with technologies ineffective in reducing the worst effects of climate change.

The impact of environment and global health issues is broadly negative, with greater incidence of extreme events such as flooding, water and supply issues, increased migration and emergence of new communicable diseases. This worsens public health outcomes considerably, leading to public pressure for increased public health workforce capacity, especially at national level to manage crisis response.

The implications for the public health workforce may include **increased employment for those staff able to address the immediate consequences**, including:

- **Health protection staff**, e.g. managing adverse weather events;
- **Scientists and academics**, e.g. researching and testing treatments for emerging and increasingly prevalent non-native diseases;
- **Epidemiologists and analysts**, e.g. monitoring the spread of disease and advising on the prevention of further outbreaks,
- **National level staff**, e.g. coordination of response.

Other implications may include:

- **Public health staff working with communities to develop local, volunteer-led solutions**;
- **The development of networks of public health teams to provide surge capacity**, able to respond to local emergencies at short notice;
- **Given limited budgets, reduced expenditure (and reduced employment)** in other areas of public health.
3. Future skills and functions

The CfWI suggests that the public health workforce in 2035 is likely to need four related families of skills and functions:

- **System leadership** – putting the public’s health at the front of all government activities and policies, and bringing partners and other agencies together to deliver effective change and manage health inequalities. This function cuts across the other three functions listed below;

- **Health protection** – addressing the issues to health arising from disease and environmental challenges;

- **Healthcare public health** – maximising the population benefits of healthcare through prioritising resource, and through better design, access, utilisation and evaluation of healthcare interventions and care pathways;

- **Health and wellbeing** – achieving the cultural and lifestyle changes required to place people in control of their own health.

Most of these skills will likely be familiar to us now – public health specialists currently operate across all four skill sets – but the people and the methods of delivery will be different in the future, depending on the exact impact of and interaction between the factors driving change described in the previous section.

3.1. Overarching themes

Overarching themes we are likely to see over the next 20 years are set out below.

*Less use of the term ‘public health’*

This reflects the vision of the *Five Year Forward View*, which aims to put prevention at the heart of NHS policymaking. It also reflects the growing profile of *Making Every Contact Count* (NHS Yorkshire and the Humber, 2012; PHE & HEE, 2016), as well as efforts to provide more general, public health skills within pre-registration training for key groups (e.g. Shape of Training, 2013; PHE, 2013, PHE, 2014).

For many workforce groups ‘public health’ is unhelpful as a term (for many people it is too general, and associated with disease control), and can be a barrier to productive conversations with patients and the general public – increasingly these staff will want to discuss personal wellbeing, physical health and happiness instead.

By 2035, there should be a far higher profile for individual and community health and wellbeing, building on the early work of, for example, the What Works Centre for Wellbeing ([http://whatworkswellbeing.org](http://whatworkswellbeing.org)) and the national personal wellbeing statistics developed by the Office of National Statistics (ONS) (ONS, 2016), which analyses ratings of life satisfaction and anxiety across geographies and ages. It will become more important to live well than to live longer.

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8 The ONS’s Measuring National Wellbeing programme seeks to produce accepted and trusted measures of national wellbeing, with the aim to look beyond GDP through assessing indicators such as health, relationships, education and skills, what we do and where we live and personal assessment of own wellbeing. More can be found at ONS, 2016.
A blurring between the ‘core’ and ‘wider’ workforces

The traditional understanding of the public health workforce has been to distinguish between specialists (those providing strategic leadership), practitioners (those providing delivery) and the wider workforce (those providing support to delivery) (Walters, Sim & Schiller, 2001; Skills for Health, 2008; CfWI, 2014b; CfWI, 2016a; CfWI, 2016b). Of these, it has been customary to describe specialists and practitioners as core and distinct from the wider workforce (CfWI, 2014b; CfWI & RSPH, 2015).

With a core workforce of approximately 36,000-41,000 people (CfWI, 2014b) but a potential wider workforce of 15 to 20 million people in public health (CfWI & RSPH, 2015) and future demand for skills in health and social care likely to be at lower skills levels (CfWI, 2015a), it is clear that greater engagement with other workforces outside public health will play a key part in improving public health outcomes.

The implication is that in the years to 2035 the distinction between the core and the wider workforce may become less helpful, with increased blurring of both workforces. This may be especially true within local authorities as other workforces hitherto thought to as the ‘wider workforce’ increasingly provide ‘core functions’ within partnerships or joint teams. The focus will be on what functions staff provide (i.e. what they do), rather than the team they work in.

However, it will be important for public health specialists to provide a role in supporting and developing public health skills and competencies within the wider workforce, supported by a new and updated Public Health Skills and Knowledge Framework (PHSKF) if and once implemented (PHE, 2015b). Ensuring public health specialist capability where essential and where needed to develop capacity within the wider workforce should not be forgotten, and indeed it was a key factor in the CfWI’s suggestion to broadly maintain specialist training numbers at current levels over the next two to three years (CfWI, 2016a). Increasingly, public health specialists will be guarantors of public health provision, rather than exclusive providers; leaders who ‘steer, not row’ (Osborne & Gaebler, 1993).

A greater role for the private and voluntary sectors

Based on current trends, it is realistic to expect that private and voluntary sector organisations may have an important role to play in delivering public health services in future. There may be differences in the nature of work delivered: while the private sector may focus solely on commissioned delivery projects, the voluntary sector, while also likely to take on commissions, may also be more likely to take on advocacy work, especially in areas such as health and wellbeing.

The Government announced in the 2015 CSR (HM Treasury, 2015) plans for future local government funding to be based on local business rates; therefore, local economic growth will become crucial to supporting public health services. This will draw the private sector and public health closer together: business rates will provide the basis for local government and public health funding, but in return good public health outcomes will enable strong economic growth locally. This market imperative could encourage businesses to take far greater interest in public health, both in terms of the communities they operate in, and of the staff employed in their firms.

New technologies also have the potential to significantly drive public health outcomes if harnessed effectively and, while it is likely some new innovations will be driven by publicly funded research, it is likely that many health innovations will be driven by the private sector. Fully realising the potential of these innovations, and where appropriate working with those companies driving innovation, will be a necessity for the public health workforce of the future.
The size of the state is currently shrinking. If this continues or the Government prioritises other services, gaps in public health provision may be filled by the private or voluntary sector, targeting those excluded from mainstream services due to low incomes or lack of access to digital services.

Greater workforce flexibility and mobility

Given the many uncertainties identified earlier in this report, the aspiration over the next 20 years should be to ensure an agile workforce, to ensure staff can operate in a variety of settings and respond to changing circumstances. Progress can already be seen within moves to make medical curricula more flexible, for example, through the Shape of Training Review (Shape of Training Review, 2013). In addition, the proposed Skills Passport (PHE, 2015c), if implemented, will also help support individual mobility around the system in gaining knowledge and experience.

Likely outcomes over the next 20 years could include:

- Making training faster and shorter, with less focus on front-loading and more emphasis on on-the-job training. This will make workforce planning easier and allow staff to train for specific roles as required;
- Enabling better ease of movement for staff to move between different sectors, by removing disincentives to move and allocating resources to priority areas;
- Given the reality of regional devolution, greater informal sharing of employees in public health across and within organisations through measures such as secondments;
- A move towards portfolio based careers rather than traditional linear careers, through measures such as the mooted Skills Passport (PHE, 2015c) to support common knowledge and skills across the system and workforce mobility.

A vision of ‘personal responsibility’ for people’s own individual health

People will take greater personal responsibility for their own individual health, and thereby create a society where healthy behaviours are encouraged through appropriate incentives across the physical, social and economic environment. There will remain a need to use legislation and taxation occasionally; for example, through measures such as the ban on smoking in public places in the 2000s, and a ‘sugar tax’, which was recommended by PHE in 2015 (PHE, 2015a) and which was consequently introduced as a levy on the soft drinks industry in the Government’s 2016 Budget (HM Treasury, 2016).

However, the future trajectory is that the state will likely look to take a less interventionist role, looking to change people’s behaviour through smaller day-to-day interventions rather than through legislative and financial instruments. With the advent of new technologies, self-care will become easier to promote in day-to-day living, and the public may also become both better educated about their health and better motivated to improve it.

3.2. System leadership

Public health is likely to be a different discipline by 2035: whilst the connection to the health service will continue to be important, the discipline is likely to be less medical and dental, and more open to a wider range of individuals passionate about improving the public’s health (CfWI, 2016a).
Effective public health will be about system leadership and building cross-functional teams to deliver systematic solutions, including all the wider determinants of public health. The impact on the workforce will be:

- With devolution, **system leaders will exist at multiple levels** – national, regional, local and community;
- **Leaders will be needed in all sectors**, e.g. within communities and corporations, not just at the top of government public health teams;
- **Leaders will be needed across public health** (including health protection and health and wellbeing, as discussed below);
- **Leaders will act as facilitators and enablers**, rather than traditional controllers of resources – as such the softer skills listed below will be as important as deep technical expertise, and leaders are likely to come from a variety of backgrounds and will not necessarily have spent their whole careers in public health;
- **The DPH role may focus increasingly on more technical leadership functions**, perhaps focused on data analysis or health protection, with the task of addressing health inequalities shared across the senior management team (and probably across authorities).

The skills required for system leadership are likely to include:

- **Communication** – to explain different types of information to a variety of audiences for different purposes;
- **Influencing** – to build effective partnerships;
- **Strategic commissioning** – because appropriate skills and services are likely to be spread across sectors and geographies;
- **Working with communities** – empowering non-professionals to take charge of their lives, using community asset-based approaches[^9] and co-production of services;
- **Cross-sector working** – including commercial relationships, shared responsibility and working across boundaries;
- **Horizon scanning** – identifying and preparing for future problems and opportunities;
- **Population health** – building on what is currently called ‘healthcare public health’, including the design of public health interventions;
- **Health economics** – being able to justify public health alternatives based on outcomes, return on investment or value for money;
- **Political astuteness** – to engage effectively with politicians at all levels.
- **Understanding the evidence base** – to ensure public health interventions are evidence based and based on critically appraised information
- **Ability to critically appraise information** – to assess the effectiveness of interventions.

Many of the skills listed here are consistent with the proposed revised PHSKF content (PHE, 2015b) which places equal emphasis on what staff do and how they do it.

### 3.3. Health protection

Given the future threats of both climate change and communicable diseases, sufficient capacity is needed in order to ensure the system can respond to external threats: for example, to global disease threats such as the Ebola or Zika viruses in recent years.

[^9]: An ‘asset’ is any factor or resource which enables individuals, communities and populations to maintain and sustain health and well-being. An asset approach values the (often untapped) capacity, skills, knowledge, connections and potential in a community.
There will be particular demand for specific skill sets, such as:

- **Science, in all its many forms** – as noted in the previous section, these are likely to be focused on:
  - Harnessing new technologies to address public health challenges arising from climate change and global health trends;
  - Developing better treatment and management of existing communicable diseases;
  - Specific areas of scientific expertise to address environmental hazards including nuclear or bioterrorism;
- **Emergency planning** – building on the latest science, for example, in communicable diseases or environmental hazards including nuclear or bioterrorism;
- **Community resilience, co-production and response preparation and delivery**;
- **Management of communicable diseases** and controlling the mobility of disease;
- **Programme design and delivery management** – for example, for continued immunisation and other health protective programmes and screening for non-communicable diseases.

The workforce is likely to include:

- **Staff primarily working in the public sector** (although many tasks will be contracted out to the commercial sector), given the economies of scale required to deliver world-class science;
- **Scientists and technicians qualified in biomedical science, ecology and environmental health**;
- **Clinical staff qualified in epidemiology and in screening and immunisation**;
- **Programme and project managers** to support the public health experts;
- **Community roles and local teams delivering immediate incident response**.

### 3.4. Healthcare public health

Healthcare public health is the application of public health skills and approaches to the delivery of services. It is, as defined by the Faculty of Public Health (FPH), ‘concerned with maximising the population benefits of healthcare while meeting the needs of individuals and groups, by prioritizing available resources, by preventing diseases and by improving health-related outcomes through design, access, utilisation and evaluation of effective and efficient healthcare interventions and pathways of care’ (Faculty of Public Health, 2015).

Expertise in understanding patterns in data, and synthesising the results of research will be necessary to improve the effectiveness and efficiency of health and care services. By focusing on the whole population rather than just those in treatment, public health professionals can give important perspectives on fairness of provision, prioritisation, and whole care pathways (from prevention to treatment and care). The principal objective is therefore to improve services for patients as well as getting the best from current resources.

While this has always been an important element of public health practice, there may be an increase in need in this area, as finances are constrained, meaning services need to be more efficient (i.e. get the most out of limited resources). The public health skills to assess the effectiveness of new and emerging treatments will be critical to this. Moreover, increased public expectations mean a need to improve quality and safety of services, which require public health skills.

There will be a particular increase in demand for healthcare public health skills and competencies such as:

- **Strategic planning** – critical analysis of public health service, what benefits it provides to the public and macro-environmental analysis to identify localities which need specific public health health interventions.
- **Health economics** – if public health remains under financial pressure, public health practice is likely to be constrained however will need to be more efficient, (i.e. get the most out of limited resources) provide value for money and return on investment. This includes, cost benefit analysis of new and emerging treatments.

- **Health intelligence** – the ability to synthesise public health data and information from multiple sources which can be clearly communicated and used to inform planning and development of population health outcomes.

- **Monitoring, evaluation and critical appraisal** – continuous quality assurance of public health interventions against quality standards, evaluating outcomes and service improvement analysis. This would be to generate and communicate evidenced recommendations for improving population health across a variety of settings.

- **Modelling/epidemiology** – the ability to collect, analyse and interpret multiple large datasets for surveillance of new and emerging diseases.

- **Leadership** – influencing, negotiating and persuading people within and outside their own organisations.

The workforce is likely to include:

- A larger proportion from statistics and quantitative science or mathematics backgrounds with specific training in analytics, health economics and data modelling.

- Staff responsible for quality assurance at all stages of public health delivery and provide feedback to improve public health services.

The specialist workforce overall will have greater knowledge and capability to perform healthcare public health functions. The Faculty of Public Health Specialist training curriculum will likely have a greater proportion of healthcare public health content than currently. Trainees will increasingly need to learn healthcare public health skills and their application to NHS data in multiple settings.

### 3.5. Health and wellbeing

This field covers aspects of mental health, health promotion, exercise, community engagement and lifestyle management (including substance misuse) – with the goal of improving personal health and wellbeing, with services optimised to meet population need. It also considers work on wider determinants of health, for example housing, planning and transport.

These staff will be tasked with addressing community or population levels of, for example, satisfaction and anxiety (using the successors to current ONS statistics) and will work with a wide number of professionals working in transport, housing and related sectors in order to improve wider determinants of health and health inequalities.

There will be demand for specific skill sets, such as:

- **Management of lifestyle choices, including sexual health and alcohol and other substance misuse** – including medical and non-medical interventions;

- **Science** – mastery of new technologies and science to support individuals in improving their health;

- ‘**Big data**’ – management of vast quantities of data from multiple sources, including social media, data analysis and data interpretation;
- **Health economics and healthcare public health** – advising where public health interventions will have the greatest impact;
- **Behavioural insight and change management** – understanding how to persuade people to change their behaviours (at an inter-personal level, this is likely to include skills such as **motivational interviewing**);
- **Modelling and epidemiology** – the interpretation of evidence and statistics, and the development of new ways of measuring health and happiness;
- **Mental health and wellbeing** – a greater awareness than currently of the importance of mental health to overall wellbeing;
- **Engagement management and community work** – grass roots co-production of services to meet specific needs.

The workforce is likely to include:

- A **small core of highly qualified staff** able to analyse data and advise on the most appropriate or cost-effective interventions;
- A **larger group of experts in specific issues** such as mental health, exercise, sexual health or substance misuse;
- **Staff responsible for the wider determinants of public health**, with specific training in the impact of their services on the public’s health;
- **Many groups of volunteers** engaged in community activities, supported in some cases by charities or government grants;
- **Staff with a wide range of qualifications** – a heterogeneous group with a common aim and perhaps common leadership, with a mix of specific technical or clinical skill sets for specific functions supported by a range of generic inter-personal skills.
4. Future careers

The CfWI believes the public health careers of tomorrow will be less structured than they are for most workers today. Examples will include:

- **Easier access to public health careers**, with a range of entry-level qualifications from volunteer to graduate level;
- **Faster, more flexible training routes** – reducing the front-loading of training common in many careers today, and allowing training providers to respond more quickly to changing labour market forces;
- **More mid-career training and re-training** – allowing staff to redirect their careers by topping up or refreshing key skills;
- **More modular training** – focused on specific functions or roles, so that staff can demonstrate competence for specific tasks;
- **More job mobility**, with staff moving employers and sectors to gain experience;
- **More part-time working**, for example for older workers or parents;
- **More home working**. This may be enabled by technology, with ready and secure access to data and social media outlets;
- **More self-employment or flexible employment** (for example, contractors or project managers working fixed terms, zero-hour contracts and other arrangements such as the ‘chambers’ model currently seen in law practices);
- **More entrants** to public health, with staff bringing generic skills to bear on public health issues;
- **More exits** from traditional public health roles, with staff taking skills learnt in public health and applying them in other disciplines.

The CfWI believes regulation of the profession may change in future. There may be:

- **A single regulator** for all staff delivering public health functions, perhaps an Institute for Public Wellbeing;
- **Regulation and revalidation based on competence** for current role rather than a wide range of skills;
- **‘Right-touch regulation’** (as proposed by the Professional Standards Authority (PSA), PSA, 2015) so regulation will exist where it is needed to protect the public, the employer or the employee, and will not unnecessarily professionalise specific staff groups or create barriers to entry.

To understand what the make-up of the public health workforce may look like in future and to provide practical examples which help to consider the drivers of change in context, the CfWI has created generic example workers and suggested the roles they may fulfil, the training they receive, and how they interact with other workers across public health disciplines and beyond. The generic roles seek to explain what and how skills and tasks are delivered in 2035.

The suggested roles are:

- A **scientist** working on disease control;
- A **health protection officer** working in a regional support team;
- An **analyst** working on health economics and related data;
- A **systems leader** working as the chief executive of a city council;
- A parent working as a volunteer **public health champion**;
- A **specialist** working across population health;
- A **community health worker** providing ante-natal support services.
Importantly, the role descriptions focus on skills and functions, not on job titles, qualifications nor the organisation name of the employer – this approach allows us to consider what may be required in 2035.

NB. These example roles are intended to address many of the issues identified in previous sections. They are not intended to provide comprehensive coverage of every member of the workforce.

### 4.1. Scientist

Vijay works in the national public health research laboratories, a world-class centre of excellence. He is an expert in bioinformatics – using computing power to understand biological information. He has a master’s degree in genomics and is studying part-time for a diploma in international development.

Vijay’s research is focused on developing vaccines and other control measures for the tropical diseases which have become more prevalent in England in recent years. He works closely with leading academic institutions across the UK and abroad. Government funding has been made available because of the immediacy of the problem and the extent of the risk to the public’s health.

His team includes a mix of staff who have progressed via internal recruitment and development schemes, and those joining from academia or the private sector. Prior to his current job he was a researcher at the University of Cambridge, and he retains some links, e.g. teaching undergraduates about the practical application of genomic theory.

Talking to colleagues, Vijay is aware of significant changes over the past 10-20 years, including:

- Research is increasingly focused on immediate problems rather than long-term or blue-sky thinking;
- The pace of technological change is accelerating with major advances in genomics and related sciences;
- The availability of better and more immediate data, from a wide range of sources, including public, personal and commercial providers;
- Dramatic increases in computer power, required to manage the new data sources;

### 4.2. Health protection officer

Susan works in a regional health protection team. Her role, with colleagues is:

- Emergency planning – identifying environmental and other risks to public health and developing risk mitigation strategies and response plans;
- Response to outbreaks – providing immediate advice to the public and other government agencies on how to respond to incidents;
- Management of epidemics – providing specialist guidance in the long term management of contagious diseases.

Susan has a biology degree. She joined the health protection team 10 years ago as a graduate trainee, and worked in a number of departments to gain experience. She now manages a team responsible for health protection issues across East Anglia.

She has since taken a master’s degree in public health (MPH), part-time whilst still working. This has given her a sound theoretical basis for her work and broadened her understanding of public health issues.
Susan’s team is funded by and accountable to a regional assembly, but liaises closely with local authorities to manage local responses to emergencies and with a national agency to coordinate strategies and plans across regions.

Other members of her team have experience of managing specific environmental or health hazards. Some are medically trained. The balance of skills across the team and its ability to deliver the outcomes specified by the Government is more important than specific qualifications held by individuals.

In recent years, Susan has noticed an increase in diseases not previously found in England and increasingly unsettled weather. Both of these factors are increasing the workload of her team. However, improvements in genomics and personal technology are making it easier to track epidemics and contain the spread of disease.

4.3. Analyst

Mohammed is a public health economist. He works for the commercial arm of a large university.

His role mixes academic research with projects commissioned in most cases by local and national agencies, but sometimes by the private sector.

His skill set is the ability to:

- Evaluate public health interventions to advise which are the most effective through cost benefit and cost effective analysis;
- Analyse large quantities of data, including personal health data, reference costs data and population-wide studies;
- Prepare assessments of local populations to identify health and social care needs;
- Measure health inequalities.

Mohammed has a degree in statistics, and is a Member of the Institute for Public Wellbeing (after having completed a series of modules on public health to complement his practical experience).

He has worked in public health for over thirty years, firstly for a local authority, then a PHE regional knowledge and intelligence team, then a consultancy firm and now his current employer. He manages a team of 15 analysts, with backgrounds in geographic information systems, information science, public health practice and health economics.

Most of his projects are driven by the need to justify investment in prevention activities. He is able to apply academic disciplines to commercial work.

Over the past 10-20 years of his career, Mohammed has noticed:

- Increased commercialisation, with clients seeking approval for new interventions or confirmation of improving health outcomes from their programmes;
- The increased power of technology deployed to tackle public health issues, and the commensurate increase in the quality and quantity of data available for analysis;
- The changing composition of the workforce at community level, with public health messages delivered by an increasingly diverse set of professionals and by volunteers.
4.4. Systems leader

Mary is the chief executive of her local city council, and sits on the executive board of the body responsible for devolved powers in her sub-region (covering the city, two other large conurbations and the surrounding district).

Mary initially trained as a paediatric nurse, and after becoming interested in public health transferred to a county council to work as a school nurse. Following a series of posts in health improvement, including working at community level with disadvantaged groups and delivering early years health education, Mary joined a fast-track specialist training course. This provided accelerated training across the public health domains, with a focus on health improvement and reducing health inequalities as well as additional training in health protection.

Mary chose to work for her current employer, because of its commitment to the health of its citizens. The city council has identified the wellbeing and happiness of its population as its primary purpose, and over the past 10-20 years has been successful in influencing the wider determinants of health within its control to great effect. Now, all environment, economic and development policies consider public health implications as a matter of course, recognising, for example, the interdependence of jobs, housing and health.

Mary’s first post with the council was as its public health lead, providing data analysis and policy guidance to assess the public health impact of council initiatives. She was promoted to be head of the council’s early years team, managing a mix of nursing staff, social workers and health improvement coordinators.

Mary has been chief executive for three years. She was chosen because of her ability to articulate the importance of public health to the community at large and to work across agencies and stakeholder groups to deliver effective programmes of change. She is particularly proud of the following:

- Building grass roots capacity to enable communities to help each other;
- Creating a more sustainable transport policy for her sub-region;
- Reducing health inequality in her city.

During her career, Mary has noticed:

- The growing profile of public health within local authorities, and of public health professionals, who are able to use their skills across a broad range of departments;
- An ageing population and new health challenges arising;
- The shape of the workforce – public health knowledge is no longer confined to a separate team or discipline because all professionals are trained in the key elements, and it is far harder to make the distinction between core and wider workforces.

4.5. Public health champion

John is the father of two primary school age children. John and his partner both work part-time and share child care duties. He is a member of the volunteer, wider workforce in public health.

John is aware that his children receive far broader health education than he did, and that childhood obesity is less prevalent than it was in the past. Childhood obesity has reduced since the passing of legislation to reduce
salt and sugar levels in food, limit the marketing of unhealthy products and improve nutritional education. In addition, John is fortunate to live in a new town, developed over the past 20 years with public health in mind – the developers took every opportunity to ‘design out’ the obesogenic environment, and ‘design in’ health and wellbeing. As a result, for example:

- John’s children are able to play outside and cycle to school safely;
- His parents are able to live nearby in ‘care-ready homes’ designed to be adaptable to the needs of people with long-term conditions, a nurse-led treatment centre, pharmacy and integrated care hub.

John is aware that he has his part to play, and closely monitors the food his family eat. He is able to use technology to understand the nutrition in each meal or product. He uses wearable mobile and electronic devices to track the health of his family, as well as access timely health advice.

John notices that people smoke and drink far less than his parent’s generation. However, he is concerned about continuing health inequalities, and the need for continuing health education. John is a member of his children’s school’s parent teacher and community association, and takes a lead role in encouraging pupils, parents and the wider community to live healthier lives. He has received training on public health issues funded by a local charity, qualifying as a community health champion, and speaks regularly both to groups and to individual families or parents about health issues.

John is worried about infectious diseases, and makes sure that his children get their vaccinations as national public health campaigns have made him aware about the increase in antibiotic resistance and the global spread of emerging diseases.

### 4.6. Specialist in population health

Ethan is Population Health Director at a regional Accountable Care Organisation (ACO). He is sometimes teased by his fellow directors as being the ‘conscience’ of the ACO because of his constant focus on the public’s health rather than the concerns of different professional groups. He is also highly respected for his ability to find and use data and research (and explain it clearly) to improve board decisions.

He started his career as a pharmacist and, after a few years in a Healthy Living Pharmacy, he took a medicines management role at the ACO. His population focus led him to the Master in Public Health (MPH) course at his local university, which brought him into contact with many different public health professionals. It also made him realise he was good at epidemiology (his dissertation was published in the *Lancet*) and he has kept close links with the academic department throughout his career: lecturing on the MPH programme and doing many research projects.

Ethan decided to pursue a career as a public health specialist and undertook the training programme in two years using his prior knowledge and experience. His first post was in local government where he gained significant experience and confidence. He was at ‘Gold Command’ for a major chemical fire; was instrumental in reducing smoking rates to just over 5 per cent and led the strategic commissioning of the first ACO, integrating health and care services in the region. This he enjoyed, so he jumped at the chance when an opportunity came up to work for the medical director at a neighbouring ACO as population advisor. Two years later there was a major re-organisation and the need for a Population Health Director at board level was recognised, partly as a result of his work. He was well placed to get the post.
Seven years on and Ethan is looking for new challenges. This is his last week in post as he starts next Monday as Director of Public Health for the regional Combined Authority as well as health advisor to the elected mayor. Some of the challenges he is looking forward are: working closely with local businesses (the regional chamber of commerce has part funded the post) in their health improvement role; dealing more with elected members (using his skills at summarising evidence) and focussing on demonstrating the return on investment on public health interventions (with the Health Economists at his local university) as there are budget cuts predicted for next year.

4.7. Community health worker

Elaine is a health visitor, focusing on perinatal mental health. She is a qualified midwife, who chose to gain an additional qualification as a specialist public health nurse and in managing ante-natal depression. She manages a team working primarily with mothers who are about to or have given birth, and who are known to have or be susceptible to mental health conditions.

Her initial training enabled her to assess mental health needs of her service users, to ensure any conditions arising do not preclude children from having the best start in life. Her focus on perinatal mental health was prescient: with obesity less common and smoking during pregnancy now rare, mental health has become far more prominent in her work. Increasingly, with accredited counselling apps able to take on more of the burden of her work, she is able to focus on areas where greater human interaction is needed, for example in deciding what interventions are required, identifying where new hazards may pose a risk, and where individuals have less access to technologies or have difficulties which preclude using them. Nonetheless, her work is increasingly supported by ever improving home technologies and remote engagement and monitoring, which encourage greater self-management and more responsive of working with local community services.

Recent ZIka outbreaks have led to a number of babies born with learning and developmental difficulties in the community, leading to a need for greater capacity in managing learning disabilities as well as increased awareness of communicable diseases within her team.

Elaine works for a private company, which is commissioned by a local authority to provide health visiting services within that area and which has done so successfully for a number of years. Previously, her career has seen her work in a wide range of organisations, including a GP surgery, a pre-school and in a women’s prison, before spending several years in a local authority as a commissioning manager where she led commissioning for mental health and 0-5 services. This experience has helped her develop considerable skills relating to health improvement and system leadership: not least in project and programme management, service commissioning, working across organisational boundaries and different communities, data analysis, behaviour change... and of course, mental health and wellbeing.

During her career, Elaine has observed that:

- There is now far greater recognition of mental health as a public health issue, and far greater awareness that resolving mental health issues is crucial to ensuring optimal public health outcomes for the patient;
- Those working in areas such as health visiting are now expected to work in a range of different organisations during their career, and leaders in the field are required to have a wide range of technical and interpersonal skills;
- Those working in her field increasingly work in a more agile manner, across teams and disciplines, supported by technologies designed to facilitate self-management by patients where possible and health visiting interventions where necessary.
5. Conclusions

This report has taken a high-level overview of the factors likely to affect the public health workforce over the next 20 years, before discussing the potential implications on skills and on how these may be delivered by both those within the public health system and wider society.

The CfWI’s findings are consistent with the conclusions reached by PHE in its five year view of the public health workforce, which covered the following five points:

- Creating an attractive career;
- Developing a stronger social movement for health;
- Building skills for the 21st Century;
- Strengthening strategic and system leadership;
- Ensuring resilience, flexibility and mobility (PHE, 2016a).

Building on these observations, the CfWI considers that there are four cross-cutting themes that commissioners will need to continue to consider over the long term.

1. Managing demand more proactively across the health and social care system

Demand for health and social care skills will increase over the next 20 years, but the extent to which it increases will depend on how proactive and effective the system is in managing demand upfront. Improving health literacy over the long-term, through both political and societal means, would mean people are better able to manage and take responsibility for their own health and wellbeing. This will mean embedding public health messaging within all areas of policy, better targeting and design of interventions towards more ‘at risk’ groups, and encouraging adoption of new skills and technologies designed to promote better health awareness. It will also mean public health will need to become ‘everyone’s business’ over the long term.

A priority for the system will therefore be to ensure successful alignment of public health priorities across the system, and that public health messaging is communicated effectively and is consistent across health and social care.

Commissioners may wish to take into consideration the following actions:

- Integration and devolution – identifying best practice and making them transparent across the system may improve delivery of public health services.
- Public health engagement – awareness of public health needs to be a priority across sectors (for example, education) to ensure prevention and behavioural change are embedded throughout society.
- Health literacy – new technologies and new forms of communication platforms, if used effectively, may help raise awareness and encourage self-management and self-care.
- Public health is ‘everybody’s business’ – sufficient knowledge of public health across all levels may lead to the breakdown of silos and require less senior roles and more ‘hands on’ practical roles for the delivery of public health.
2. Improving the effectiveness of the public health workforce

Over the next 20 years, there will be continued focus on improving the effectiveness of the workforce – especially as the period up to 2020 is likely to be dominated by the need for financial restraint. The overall objective will be to ensure appropriate resources are available for addressing public health issues as they arise.

Key implications for the system therefore will be the need to develop a sufficiently strong evidence base to inform decision-making in public health, as well as ensure appropriate resources are allocated to addressing public health outcomes.

In workforce terms, commissioners may wish to consider the following issues over the long term:

- **Improving data availability on workforce and public health outcomes** – this would lead to better informed decisions around recruitment, management of risk, and ensuring public health interventions deliver value for money. Therefore a key task for the public health system will be to fill gaps in understanding, particularly around the workforce and around the return of investment on public health interventions.

- **Improving understanding of where the contribution of public health workforces can be maximised** – a valid question is where public health resources should be prioritised. For example, specialists and scientists may potentially need to identify and focus on areas of greater strategic importance, e.g. specific risks, or systems leadership. Therefore, greater focus will need to be on identifying and implementing the most effective skill mix required to deliver public health interventions.

- **Ensuring public health skills are embedded within all appropriate curricula and delivery functions** – this would be to maximise the public health contributions of a number of workforces, including within the NHS and the wider workforce. This will require introducing public health skills into all appropriate curriculum and CPD arrangements.

- **Improving understanding of how new innovations and technologies will affect the public health workforce** – so that new innovations and technologies are harnessed where appropriate to improve productivity and contribute effectively to public health outcomes. This will require greater skills in areas such as horizon scanning and analytics, to maximise capabilities in these areas.

- **Greater focus on strengthening system leadership** – for example, harnessing system leadership capabilities throughout the public health workforce, including through leadership development and multidisciplinary training programmes; and ensuring staff have sufficient personal effectiveness so as to maximise use of resources.

3. Improving career pathways and mobility across system

To ensure that public health can manage demand as effectively as possible within new institutional settings, career pathways will need to be flexible, adaptable, and allow people to acquire a variety of skills and areas of expertise as appropriate for a given function. This reflects the growing recognition that, in the modern context, public health should be multidisciplinary and draw on a wide range of abilities in order to improve public health outcomes. Over the long term, the priority will be to ensure career pathways develop organically and impose neither silos nor barriers on professionals.

The main long term aspiration will therefore be to ensure unity of purpose across all professions in delivering public health outcomes – without over-professionalisation and over-regulation of the workforce.

In workforce terms, commissioners may wish to consider the following issues over the long term:
**New entry points at management, graduate and apprenticeship levels** – these would make it easier for new entrants – and therefore new skills – to come into public health, especially if visibility and clarity of public health careers are increased.

**Increased CPD options** – these would make it easier for professionals to acquire public health skills through their day-to-day working.

**Mutual recognition of skills, competences and terms and conditions across the public health system** – this would enable workforce flow around the system, and therefore greater exchange of ideas and skills as well as smoother career progression. This may be through common skills across professions and organisations, and CPD options and modules, as well as continued work at all levels of government to encourage multidisciplinary working.

**The extent to which professionalisation and regulation is necessary** – a balance will need to be struck between removing barriers between professions and organisations in terms of ways of working, and recognising that some professionalisation and regulation may be needed to assure safe delivery of public health outcomes in certain areas (e.g. communicable diseases, safeguarding).

### 4. Ensuring the system can respond effectively to unexpected threats to health

By 2035 public health will be operating in a different context and facing different challenges to those it faces now. While we may be able to anticipate a number of these new developments (for example, new technologies, or climate change), it is likely that we will not anticipate new disruptive technologies, and that we will not know when extreme events or new communicable diseases are likely to strike.

A priority for the system will therefore be ensuring the public health workforce can continue to respond to the unexpected, particularly in ensuring capacity in key areas of strategic importance such as communicable diseases.

In response, commissioners may need to ensure the system has sufficient capacity in the following areas:

- **Horizon scanning** – greater awareness of ‘high impact, high uncertainty’ scenarios, trends and drivers, which have the potential to significantly affect delivery and outcomes of public health services, will be necessary to ensure the public health workforce remains ahead of the game.

- **Surveillance and monitoring** – new technologies and techniques will need to be harnessed to ensure collection and monitoring of trends which may threaten the public’s health, as well as potentially increased numbers of staff working in this area (e.g. field epidemiology, knowledge and intelligence, public health science).

- **Surge capacity** – it will be important to ensure sufficient expertise across the system to respond to emerging public health threats in areas such as communicable diseases and extreme weather events.

**Concluding remarks**

We have limited understanding of what the future will hold in 2035, with a variety of futures possible for the public health workforce. Therefore, the primary task for the system over the long term will be to monitor any changes in the system, understand their implications for the public health workforce, and if appropriate, make the necessary adjustments. With a range of planning and delivery responsibilities in the future, a shared vision of what is driving change and potential futures will help further development of this workforce. The aim of this report has been to provide information which may help identifying and making the necessary adjustments to create this shared vision easier. The CfWI hopes that this report will be a useful contribution to the debate about the workforce’s role in improving the public’s health.
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This group comprised representatives from PHE commissioners and workforce leads, HEE commissioners and local team representatives, plus Jon Sutcliffe (Local Government Association).

We also thank the CfWI Public Health Reference Group for their advice.

Stakeholder engagement

PHE, with the CfWI and the Leadership Centre, hosted eight workshops across England, with one in each local government region (PHE Centre footprint), except London, where separate arrangements were made to gather stakeholder views.

These events were aimed at senior stakeholders including chief executives of local authorities, CCG accountable officers, directors, academics, third sector and public sector provider audiences. Attendance ranged from approximately 30-70 for each workshop.

The events took place at the following times and locations:

- 24 November 2015: Taunton (South West)
- 9 December 2015: Birmingham (West Midlands)
- 7 January 2016: Newmarket (East of England)
- 12 January 2016: Manchester (North West)
- 13 January 2016: London (South East)
- 21 January 2016: Loughborough (East Midlands)
- 26 January 2016: Durham (North East)

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